

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Applicants thank the Office for withdrawing the prior objection and the rejections under 35 U.S.C. § 112.

I. DISPOSITION OF THE CLAIMS

Claims 1, 12, and 13 are currently being amended.

No new matter has been added. Claim 1 has been amended to incorporate the limitations of claim 8. Claim 13 has been amended to depend from claim 1 instead of canceled claim 12. Support for the amendment to claim 12 appears on page 4, paragraph [0090], of published application US 2008/0026102.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-6, 8-10, 13-17, and 19-23 are now pending in this application.

II. NON-OBVIOUSNESS

The claims stand rejected as obvious over US 2004/0115308 (“Bengtsson-Riveros”) and US 6,306,638 (“Yang”), alone or in combination with several other references.

The additional references applied by the Office include Hayakawa et al., J. Ferm. Bioeng., Vol. 70, No. 6, p. 404-408, 1990 (“Hayakawa”), SCK-CEN 2003, US 2004-0175407 (“McDaniel”), US 3,228,838 (“Rinfret”), and US 2,364,049 (“Bensel”).

Applicants respectfully traverse.

The claims as amended are non-obvious over the art of record, because none of the cited references disclose that bacterial size as definitive variable for tracking adaptation of bacteria. Specifically, the art of record fails to satisfy the “bacteria size” limitation.

The Office has acknowledged that primary reference Begtsson-Riveros fails to satisfy the “bacteria size” limitation. Office Action, page 8, lines 1-2.

The Office cited SCK-CEN, and no other art of record, to satisfy this missing feature. The Office stated “SCK-CEN discloses that physiological stresses such as pH can affect the size of bacteria [col. 1, Objectives].” Office Action, page 8, lines 2-3. The Office reasoned as follows (emphases added; Office Action, page 8, lines 4-9):

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Bengtsson-Riveros, Yang, Hayakawa, and SCK-CEN before him or her to modify the method of adaptation as disclosed in Yang to include the adaptation using detection of bacteria shape as discussed in SCK-CEN as it has been disclosed that exposing bacteria to stress can cause a change in the size of the bacteria. Further this reaction (size reduction) to stress can be an indicator as to whether the bacteria would react favorably under desirable conditions.

The underlined passage represents an erroneous factual finding by the Office. SCK-CEN nowhere refers to “size reduction”.

In contrast, the size mentioned in SCK-CEN is but one of the “wide variety of fine physiological changes” in bacteria that may be “monitored” under stress.

The Office cited “col. 1, Objectives” in SCK-CEN, which Applicants reproduce below:

Objectives

One of the aims of our current microbiological research is to develop fast and reproducible ways of estimating physiological status of bacteria. Therefore, methodologies have been elaborated in order to monitor a wide variety of fine physiological changes under stress in bacteria (space, T°, pH, H₂O₂, ...), namely, fine changes in bacterial size, shape,

viability, membrane properties, enzymatic activity, intracellular pH, Ca^{++} concentration DNA/RNA ratio as well as the response to oxidative stress (intracellular $\text{H}_2\text{O}^\bullet$, O_2^\bullet and thiol concentrations) can be followed.

This passage quoted from SCK-CEN does not state that bacteria size is reduced by bacteria stress or adaptation. SCK-CEN does not even state that bacteria size correlates with bacteria stress or adaptation. Instead, SCK-CEN merely states that in order “to develop fast and reproducible ways of estimating physiological status of bacteria” the authors propose “to monitor a wide variety of fine physiological changes under stress in bacteria”. This does not constitute a disclosure that “this reaction (size reduction) to stress can be an indicator as to whether the bacteria would react favorably under desirable conditions”, as asserted by the Office.

“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. ___, 82 U.S.P.Q.2d 1385, 1391 (2007).

Here, the Office cannot meet its burden to provide the required “articulated reasoning with some rational underpinning” with respect to the presently amended claims.

Indeed, SCK-CEN does not state or imply that bacterial size is sufficient for tracking adaptation of bacteria. At best, SCK-CEN proposes to study a variety of bacterial parameters to attempt to determine which might provide useful information relating to physiological status of bacteria. This is nothing more than an invitation to do research.

As the present specification reveals, the determination of bacterial size is not necessarily a simple proposition. For example, it may be necessary to rely on histograms showing size distributions (see Figures 2a and 2b comparing adapted and non-adapted bacteria).

A skilled artisan reading SCK-CEN would have no reason to believe that bacterial size could be sufficient to identify bacteria stress or adaptation. In fact, SCK-CEN suggests that its results are limited to “the effects of space conditions” and that more research is needed to assess the real-world relevance of its findings:

... various bacterial strains were sent into space for a few days, flow cytometry has allowed to investigate the effects of space conditions on the physiology and metabolism of bacteria. We show that a bacterial trip of a few days into space induces fine physiological changes not only at the level of the bacterial membrane but also at the metabolic level.

...

Work is still needed to better understand the behaviour difference of bacterial in function of the stresses applied.

The Office's rejection reflects elements of hindsight reconstruction. The Manual of Patent Examining Procedure advises examiners that such hindsight must be avoided (M.P.E.P. § 2142):

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

Under a proper analysis of the art of record, the claims as amended must be considered non-obvious. Accordingly, this ground of rejection should be withdrawn.

III. OBVIOUSNESS-TYPE DOUBLE PATENTING (ODP)

The claims stand provisionally rejected Office for obviousness-type double patenting ("ODP") rejection over certain claims of application 10/590,658, none of which are allowed.

Applicants request that the ODP rejection be held in abeyance pending indication of allowable subject matter.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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